IN THE CLAIMS

Please, cancel claims 1-10 and add the attached new claims 11-21.

IN THE SPECIFICATION

A substitute specification in a marked and a clean version is included.

IN THE DRAWINGS

Three replacement sheets of substitute drawings are submitted, which contain translated labeling and were cleaned of speckles.

REMARKS

Prior to a formal examination of the above-identified application, acceptance of the new claims and the enclosed substitute specification (under 37 CFR 1.125) is respectfully requested. It is believed that the substitute specification, the substitute drawings, and the new claims will facilitate processing of the application in accordance with M.P.E.P. 608.01(q). The substitute specification, the drawing, and the new claims are in compliance with 37 CFR 1.52 (a and b) and, while making no substantive changes, are submitted to conform this case to the formal requirements and long-established formal standards of U.S. Patent Office practice, and to provide improved idiom and better grammatical form.

The enclosed substitute specification is presented herein in both marked-up and clean versions.

STATEMENT

The undersigned, an agent registered to practice before the Office, hereby states that the enclosed substitute specification includes the same changes as are indicated in the marked-up copy of the original specification. It does not contain new subject matter.

Respectfully submitted,

Gerlinde Nattler

Gerlinde M. Nattler
Registration No. 51,272
Continental Teves, Inc.
One Continental Drive
Auburn Hills, MI 48326
(248) 393-8721
Agent for Applicants

10/579636
IAP20 Rec'd PCT/PTO 18 MAY 2006

SUBSTITUTE SPECIFICATION

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~~Description~~

METHOD FOR CONTROLLING A COMPRESSOR FOR CONVEYING A PRESSURE MEDIUM IN A LEVEL ADJUSTMENT SYSTEM OF A MOTOR VEHICLE

BACKGROUND OF THE INVENTION

The invention relates to a method for controlling a compressor which is suitable for conveying a pressure medium in a closed pressure medium system, preferably for conveying a pressure medium in a closed level adjustment system of a motor vehicle, in which method the current compressor temperature is continuously determined, at least during compressor operation, and the compressor is switched off no later than when a limit temperature is reached.

A compressor for conveying a pressure medium is used in a vehicle for example for performing open-loop or closed-loop control of a level adjustment system. The level adjustment system has air springs at at least one of the motor vehicle axles, by means of which air springs the height of the vehicle body can be kept constant irrespective of the loading state of the motor vehicle by virtue of the fact that for increased loading, the air springs are filled with compressed air and for decreased loading, compressed air is discharged from the air springs. In addition to the air springs, a closed level adjustment system has a pneumatic pressure accumulator, and the compressor is used both to transfer compressed air from the pneumatic pressure accumulator into the air springs in order to raise the vehicle body, and also to transfer compressed air from the air springs into the pressure accumulator in order to lower the vehicle body. Closed level adjustment systems for motor vehicles are known per se and are, for example, described in detail in DE 199 59 556 C1.

High demands are made of the compressor of the level adjustment system. It is, for example, demanded in particular that the vehicle body of the motor vehicle can be raised considerably by means of the level adjustment system (for example, from a low level to a high level in a normal passenger vehicle or to an extremely high level in an all-terrain vehicle). This can result in the compressor being heated considerably and, as a result, damaged. For this reason, various temperature models for monitoring the compressor temperature have already been developed, so that the compressor can be switched off when a limit temperature (at which it is ensured that the compressor is not yet damaged) is reached. Many of said temperature models (temperature models will be denoted as methods in the following) are distinguished in that an expensive temperature sensor for establishing the compressor temperature can be dispensed with. Corresponding temperature models are known, for example, from DE 43 33 591 A1, DE 196 21 946 C1, DE 198 12 234 A1 and EP 1 253 321 A2.

None of the known methods, however, takes into consideration the distinctive feature of a closed level adjustment system in a motor vehicle, in which system compressed air is transferred by means of the compressor both from the pneumatic pressure accumulator into the air springs and from the air springs into the pneumatic pressure accumulator.

The invention is based on the object of producing a method for controlling a compressor for a level adjustment system, which method takes into consideration the distinctive features of a closed level adjustment system and is thus particularly suitable for such a system.

SUMMARY OF THE INVENTION

According to the invention ~~characterizing features of claim 1~~, the object is achieved in that the admission pressure (starting from which the compressor feeds) and counterpressure (against which the compressor feeds) of the compressor are taken into consideration in the determination of the current compressor temperature.

The advantage obtained by means of the invention is in particular that the distinctive feature of a closed level adjustment system is taken into consideration in the method according to the invention, by virtue of the fact that the admission pressure and the counterpressure of the compressor are intergrated in the determination of the current compressor temperature during compressor operation. In this way, an optimum compressor operating time can be obtained in a simple manner, without there being the danger of the compressor being damaged as a result of the limit temperature being exceeded. Here, the compressor operating time is adapted to the internal pressure ratios within the closed level adjustment system. A further advantage of the invention is that the current compressor temperature during compressor operation is determined without a temperature sensor.

According to a development of the invention ~~according to claim 2~~, during compressor operation, the current compressor temperature is adapted by a temperature value dT after every elapsed unit of time dt, said temperature value dT being dependent on the difference $p_{counter} - p_{admission}$ between the counterpressure and the admission pressure. The advantage obtained by the development is that the compressor operating time until the limit temperature is

reached is particularly well utilized because the difference between the counterpressure and the admission pressure of the compressor is taken into consideration. If, for example, the difference is small or approximately zero (the admission pressure thus approximately corresponding to the counterpressure), the compressor of the closed pressure medium system can feed without consuming a high level of power, so that it heats up only slowly. Accordingly, the current compressor temperature is in this case adapted by only a small temperature value after every elapsed unit of time, and there is a comparatively long compressor operating time until the limit temperature is reached; if in contrast the mentioned difference is positive and large, high power is demanded of the compressor, so that it also heats up considerably. In this case, the current compressor temperature is adapted after every elapsed unit of time by a larger temperature value than in the case initially mentioned, so that the limit temperature is reached more quickly than for a small difference.

According to a development of the invention ~~according to claim 3~~, the functional relationship between the temperature value dT and the difference $p_{counter} - p_{admission}$ is stored as a characteristic diagram in a control unit for the compressor. The advantage of this development is that the temperature value dT by which the current compressor temperature is adapted can easily be read out of the characteristic diagram as a function of the difference $p_{counter} - p_{admission}$. A further advantage of this development is that an associated temperature value dT can be stored for every possible difference $p_{counter} - p_{admission}$ and it is therefore possible for the current compressor temperature to be adapted in a particularly precise fashion. The compressor operating time until the limit temperature is reached is particularly well utilized as a result.

According to a development of the invention ~~according to claim 4~~, a fixed temperature value dT is predefined as a function of the difference $p_{counter} - p_{admission}$ present at the beginning of compressor operation. The advantage of this development is in particular that the difference need be determined only once, at the beginning of compressor operation. Determination of the difference during compressor operation can be dispensed with. A further advantage of this development is that only a single temperature value dT is predefined and is then used for adapting the current compressor temperature for the entire duration of compressor operation. The method according to the invention is therefore particularly simple and can be carried out with low computing capacity in the control unit of the compressor. A control unit of simple design can therefore be used.

According to a development of the invention ~~according to claim 5~~, for a difference $p_{counter} - p_{admission}$ greater than zero, the temperature value dT is predefined as being the value associated with the maximum possible difference $p_{counter} - p_{admission}$ in the closed pressure medium system. The advantage of this development can be understood if the following is considered: for the maximum possible difference, the compressor would have to feed at maximum power while conveying pressure medium. The most considerable temperature increase would therefore occur during compressor operation in the case of the maximum possible difference, so that the predefined temperature value dT would also correspond to the maximum possible temperature value dT. In the case of a difference which is smaller than the maximum possible difference in the system, the actual temperature increase of the compressor during compressor operation is definitely lower. The development thus provides the advantage that a temperature value dT is

predefined only once and it is nevertheless ensured that the actual compressor temperature increases more slowly than the calculated compressor temperature. Accordingly, it is ensured in a simple manner that the limit temperature of the compressor is not exceeded during compressor operation.

According to a development of the invention ~~according to claim 6~~, for a difference $p_{counter} - p_{admission}$ less than or equal to zero, the temperature value dT is predefined as being the value associated with the difference $p_{counter} - p_{admission}$ = zero. This development provides similar advantages for a difference $p_{counter} - p_{admission}$ to those which were explained ~~in connection with claim~~ 5 (for more detail, see description of the figures).

According to a development of the invention ~~according to claim 7~~, a maximum operating time for the compressor is predefined at the beginning of compressor operation. The maximum operating time is predefined in such a way that the limit temperature is definitely not yet reached after the maximum operating time has expired. This development provides the advantage that it is ensured that the compressor is switched off before the limit temperature is reached, even if the compressor temperature is not calculated, or is calculated incorrectly, on account of a fault in the level adjustment system (for example on account of a calculation error in the control unit of the level adjustment system).

According to a development of the invention ~~according to claim 8~~, the traveling speed of the motor vehicle is additionally taken into consideration when predefining a temperature value dT. The development is based on the idea that as the traveling speed increases, the motor vehicle and therefore also the compressor of the level adjustment system are cooled by the air stream. The one

or more temperature values dT can therefore be reduced as the traveling speed increases.

According to a development of the invention ~~according to claim 9~~, the electrical compressor voltage is additionally taken into consideration when predefining a temperature value dT. The development is based on the idea that as the electrical compressor voltage increases, the volume flow of the pressure medium in the compressor increases and the heat generated in the compressor therefore rises. The development brings about the advantage that said rise is taken into consideration when predefining a temperature value dT.

One exemplary embodiment and several advantages of the invention are explained in connection with the following figures. ~~, in which:~~

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

Fig. 1 shows a schematic illustration of a closed level adjustment system,

Fig. 2 shows a diagram of a first characteristic curve 14 for a first control process,

Fig. 3 shows a diagram in which $dp = p_{counter} - p_{admission}$ is plotted against the temperature value dT,

Fig. 4 shows a diagram in which the current compressor temperature T is plotted against the time t, where the counterpressure at the beginning of the control process is higher than the admission pressure,

Fig. 5 shows a diagram in which the current compressor

temperature T is plotted against the time t, where the counterpressure at the beginning of the control process is lower than the admission pressure.

DETAILED DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a schematic illustration of a closed level adjustment system having a compressor 2, a pneumatic pressure accumulator 4 and air springs 6a to 6d, by means of which the body of a motor vehicle is spring-mounted relative to its axles. To fill one of the air springs 6a to 6d (for example the air spring 6a), compressed air is transferred from the pneumatic pressure accumulator 4 via the switchable directional valves 8, 10 and 12a by means of the compressor 2. In the process, the switchable directional valves 8 and 10 assume the switched position shown in figure 1, and the directional valve 12a is moved into its second switched position. It is likewise possible to transfer compressed air by means of the compressor 2 from the air springs 6a to 6d into the pneumatic pressure accumulator 4. In this case, the switchable directional valves 8, 10 and 12a are actuated so that they move into their other switched position. A closed level adjustment system of said type is known per se and is described in detail, in terms of its design and its mode of operation, for example in DE 199 59 556 C1.

If compressed air is transferred by means of the compressor 2 from the pneumatic pressure accumulator 4 into one or more of the air springs 6a to 6d, the compressor temperature varies during compressor operation. The same applies if compressed air is transferred by means of the compressor 2 from one or more of the air springs 6a to 6d into the pneumatic pressure accumulator 4. It must be ensured that the compressor 2 does not exceed a

certain limit temperature so that it is not damaged. For this reason, according to the invention, the compressor temperature is continuously monitored in the control unit (not illustrated) of the level adjustment system during compressor operation and the compressor 2 is switched off no later than when a limit temperature is reached (the compressor 2 is switched off earlier if the control process is ended before the limit temperature is reached; this is the case when the vehicle body has reached the desired target level). The admission pressure and counterpressure of the compressor 2 are taken into consideration in the determination of the current compressor temperature. Here, if compressed air is transferred by means of the compressor 2 from the pneumatic pressure accumulator 4 into the air springs 6a to 6d, the air pressure in the pneumatic pressure accumulator 4 corresponds to the admission pressure and the air pressure in the air springs 6a to 6d, into which compressed air is conveyed, corresponds to the counterpressure. Conversely, if compressed air is transferred by means of the compressor 2 from the air springs 6a to 6d into the pneumatic pressure accumulator 4, the air pressure in the air springs 6a to 6d from which compressed air is conveyed is the admission pressure and the air pressure in the pneumatic pressure accumulator 4 is the counterpressure.

It will be explained on the basis of figures 2 to 5 as to how the compressor temperature during compressor operation is monitored by taking into consideration the admission pressure and the counterpressure. In the monitoring of the compressor temperature during compressor operation, it is assumed that the current compressor temperature at the beginning of compressor operation is known. Said current compressor temperature thus corresponds to the ambient temperature if, for a certain period of time, no control action has been carried out in the level adjustment

system by means of the compressor, and the compressor has therefore been able to cool down to the ambient temperature. If it has not been possible for the compressor to cool completely after a previous control process (because the period of time until the next control process is too short), the current compressor temperature at the beginning of the new control process is obtained as follows: the compressor temperature which the compressor had at the end of the control action is known from the previous control action on account of the constant monitoring of the compressor temperature. After the end of the previous control action the amount of time that has passed since the previous control action is measured in the control unit of the level adjustment system. A certain degree of cooling is assumed for the elapsed time, so that the current compressor temperature of the non-operating compressor is obtained for every time-based profile.

Figure 2 shows a diagram in which the temperature T is plotted against the time t. The diagram shows a first characteristic curve 14 for a first control process. The control process begins at the time t = 0 and at this time the current compressor temperature can be assumed to correspond to the ambient temperature Tu (that is to say, the previous control process was sufficiently long ago that the compressor has been able to cool down to said ambient temperature). It is additionally assumed for the control process that during the control process the admission pressure is lower than the counterpressure. In this case, the difference $dp = p_{counter} - p_{admission} > 0$, so that the compressor will heat up during compressor operation. The characteristic curve 14 also qualitatively reflects this, since the temperature T of the compressor 2 rises as time t passes. In the following, it is explained how the rise in temperature is determined according to

the invention: at the time $t = 0$, the compressor temperature is $T = Tu$. After one unit of time dt (that is to say at the time $t = dt$), the compressor temperature Tu is adapted by a temperature value dT_1, the size of dT_1 being dependent on $dp = p_{counter} - p_{admission}$. The current compressor temperature at the time $d = dt$ accordingly results from $T = Tu + dT_1$. After a further unit of time dt ($t = 2\ dt$), the current compressor temperature at this time is in turn adapted by a value dT_2 which is likewise dependent on $dp = p_{counter} - p_{admission}$ at this time. The current compressor temperature at this time thus results from $T = Tu + dT_1 + dT_2$. At an arbitrary time, the current compressor temperature T is therefore obtained as follows:

$$T = Tu + dT_1 + dT_2 + \ldots + dT_n,$$

"n" standing for the number of units of time which have passed. Each of the values dT_1 to dT_n is dependent on the difference $dp = p_{counter} - p_{admission}$ at the corresponding time.

If the compressor temperature T which is calculated as explained above reaches a limit value T_{limit} before the end of the current control process, the compressor is switched off so that it is not damaged due to overheating. The control process illustrated by the characteristic curve 14, however, ends at the time $t = 4\ dt$ (the vehicle body has thus already reached the target level), at which the current temperature is still well below the limit temperature T_{limit}, as can also be seen in figure 2.

A further characteristic curve 16 for a further control process in the level adjustment system can also be seen in figure 2. It is also assumed for the control process according to the characteristic curve 16 that the difference $dp > 0$ during the

control process, that is to say the counterpressure is greater than the admission pressure. At the time $t = 0$, the compressor has a temperature which is above Tu, that is to say it was not possible for the compressor to completely cool down to the ambient temperature after the previous control process in the level adjustment system. Proceeding from said current compressor temperature at the time $t = 0$, the current compressor temperature is calculated at an arbitrary time during compressor operation (that is to say during the control process) in the way which was described above. At the time $t = t_{limit}$, the current compressor temperature T reaches the temperature limit value T_{limit} and the compressor is switched off, even if the control process should not yet have been terminated at this time. Overheating of the compressor is effectively prevented in this way.

Figure 3 shows a diagram in which $dp = p_{counter} - p_{admission}$ is plotted against the temperature value dT. The diagram illustrates a characteristic curve 18 which reflects the relationship between dp and dT for all values of $dp > 0$. A corresponding characteristic curve is stored in the control unit of the level adjustment system, and it is explained in the following as to how the temperature values dT_1 to dT_n (see also the figure description for figure 2) can be determined by means of a characteristic curve 18 of this type. At the time dt (see figure 2), it can be assumed that $dp = dp_1$. The associated dT_1 can be read from the characteristic curve 18. The same procedure is adopted for the values dp_2, dp_3, dp_4, … dp_n. For calculating $dp = p_{counter} - p_{admission}$ at a certain time, the current admission pressure and the current counterpressure of the compressor 2 can, for example, be measured by means of pressure sensors 20, 22 (see figure 1).

In the explanations relating to figures 2 and 3, it was assumed

that during the explained control processes, the counterpressure is greater than the admission pressure, so that $dp = p_{counter} - p_{admission} > 0$. It is however likewise possible that during a control process, the counterpressure is lower than the admission pressure, so that $dp = p_{counter} - p_{admission} <$ zero. A characteristic curve corresponding to the characteristic curve 18, from which the temperature values dT can be determined in accordance with the above explanations, is also stored in the control unit of the level adjustment system for control processes of this type.

Figure 4 shows a diagram in which the current compressor temperature T is likewise plotted against the time t. The diagram illustrates a first characteristic curve 24 for a control process. At the time t = 0, that is at the beginning of the control process, it can be assumed that the current compressor temperature T = Tu. In addition, at the beginning of the control process (t = 0), it can be assumed that the counterpressure for the control process is greater than the admission pressure, so that the difference $dp = p_{counter} - p_{admission} > 0$ (this is the case for example if compressed air is to be transferred by means of the compressor 2 (see fig. 1) from the pneumatic pressure accumulator 4 into one or more of the air springs 6a, …, 6d and the air pressure in said air springs 6a, …, 6d is greater than in the pneumatic pressure accumulator 4). In this case, the compressor will heat up during the control process, that is to say the current compressor temperature T is to increase by positive temperature values dT during the control process. At the time t = 0, one single temperature value dT_{max} is fixed for the entire control process according to the characteristic curve 24, by which value dT_{max} the compressor would heat up within a unit of time dt if the difference $dp = p_{counter} - p_{admission}$ were to assume the maximum possible value in the system, that is to say if the

counterpressure were at its permissible maximum and if the admission pressure were at its permissible minimum. In this case, the compressor would heat up to a maximum degree during one unit of time dt, and for all other, smaller values of dp, the compressor would be heated less. The temperature value dT_{max} which is fixed in this way is added to the current temperature value T after each unit of time dt, resulting in:

$$T = Tu + n \times dT_{max},$$

"n" corresponding to the number of units of time which have elapsed. The control process is terminated if the calculated current compressor temperature, which is calculated in accordance with the characteristic curve 24, reaches the temperature value T_{limit}, specifically when the control process has not yet ended. Damage to the compressor as a result of overheating is therefore reliably prevented. The one-off fixing of the temperature value dT_{max} in the case that dp is greater than 0 at the beginning of the control process provides the advantage that it need only be established at the beginning of the current control process (that is to say at the time t = 0) that dp is greater than 0. It is thereafter no longer necessary to determine dp, and therefore no longer necessary to carry out pressure measurements, during the control process.

Figure 4 illustrates a further characteristic curve 26, in the case of which the current compressor temperature is calculated more precisely, specifically in the manner which has already been explained in connection with figure 2 in connection with figure 14. The characteristic curve 26 inevitably runs below the characteristic curve 24, since for the characteristic curve 24 the maximum possible temperature rise in the compressor is

assumed, and for the characteristic curve 26 the actual temperature rise in the compressor is assumed, which is less than or equal to the maximum possible temperature rise. This means that high reliability is ensured on account of the simple method of calculation of the current compressor temperature in accordance with the characteristic curve 24.

It is possible, in addition to the limit temperature T_{limit}, to fix a maximum operating time for the compressor, said maximum operating time being selected such that at this time, the compressor is definitely still at a temperature which is below the limit temperature T_{limit}. The control process can be terminated after the period of time T_{max} has expired. In this case, overheating of the compressor is reliably prevented by means of a simple time measurement, even if the current compressor temperature is calculated incorrectly on account of a fault in the level adjustment system etc.

Figure 5 shows a diagram in which the current compressor temperature T is likewise plotted against the time t. In contrast to figure 4, the diagram according to figure 5 assumes that the counterpressure at the beginning of the control process is lower than or corresponds to the admission pressure, so that the difference $dp = p_{counter} - p_{admission} < 0$. This is the case for example if the compressor 2 (see fig. 1) feeds compressed air from the pneumatic pressure accumulator 4 into at least one of the air springs 6a to 6d and the air pressure in said air springs 6a to 6d is lower than in the pneumatic pressure accumulator 4. This is likewise the case if compressed air is transferred by means of the compressor 2 from at least one of the air springs 6a to 6d into the pneumatic pressure accumulator 4 and the air pressure in the pneumatic pressure accumulator 4 is lower than in

the air springs 6a to 6d. If the difference $dp < 0$, the compressor is only heated slightly during compressor operation (this is the case when the difference dp is approximately equal to zero) or is possibly even cooled (this can be the case when dp is considerably less than zero). For all cases in which $dp < 0$ at the beginning of compressor operation, it is thus possible when calculating the current compressor temperature T during compressor operation to assume that the compressor is only heated slightly by a value dT_{min} per unit of time. For this reason, after a unit of time has expired it is possible to add a temperature dT_{min}, which is associated with said heating, to the current compressor temperature T which the compressor had for a certain time, in order to estimate the current compressor temperature T at the later point in time. The same procedure is adopted after every unit of time, resulting in the characteristic curve 28, shown in the form of a straight line in figure 5, estimated for the compressor temperature T. If the compressor temperature T reaches the limit temperature T_{limit} in accordance with the characteristic curve 28 before the end of the control process, the compressor is switched off, and overheating of the compressor is thus reliably avoided.

Figure 5 illustrates a further characteristic curve 30 which reflects the actual heating of the compressor in a case in which the difference dp is significantly less than zero. It can be seen from the diagram that the characteristic curve 30 runs below the characteristic curve 28 at all times T, control always being carried out in accordance with said characteristic curve 28 if the difference $dp < 0$. The simple control according to the characteristic curve 28 thus ensures, in all cases in which the difference $dp < 0$, that the compressor is not heated above the limit temperature T_{limit}.

The control actions which have been explained in connection with figures 4 and 5 have the advantage that the difference dp = $p_{counter} - p_{admission}$ need be determined only at the beginning of the control action. A temperature value dT, which is maintained throughout the entire control action, is fixed as a function of whether dp > or < equal to zero. The counterpressure and the admission pressure can be determined at the beginning of the control process by means of the pressure sensors 20, 22 shown in figure 1. It is alternatively possible to easily determine the counterpressure and the admission pressure and therefore the difference dp by means of a single pressure sensor 32, as is explained in the following (see also figure 1). It is assumed that the vehicle body of the motor vehicle is to be raised at the front axle, so that the air springs 6a and 6b must be filled with compressed air from the pneumatic pressure accumulator 4 by means of the compressor 2. During the control process, the current level of the vehicle body is continuously monitored by means of height sensors (not shown in figure 1). The control process is ended when the current level of the vehicle body has reached the target level. Shortly before the target level is reached, the air pressure in the air springs 6a and 6b is measured by means of the pressure sensor 32. For this purpose, the air pressure at point 34, which corresponds to the air pressure in the air springs 6a and 6b, is determined by means of the pressure sensor 32. In addition, the volume in the air springs 6a and 6b is determined in a manner known per se by means of the signals of the height sensors. The air quantity in the air springs 6a and 6b is then obtained from the product of the air pressure in said air springs 6a, 6b and the volume of the air springs 6a, 6b. In the previous control process at the air springs 6c, 6d of the rear axle of the motor vehicle (the motor vehicle is always controlled alternately

at the front axle and at the rear axle in order to reach a predefined target level), the air quantity in the air springs 6c, 6d has been determined in the same way.

The air quantity in the accumulator 4 is then obtained by subtracting the air quantity in the air springs 6a, 6b of the front axle and in the air springs 6c, 6d of the rear axle from the total air quantity in the level adjustment system (which is known, since it is a closed level adjustment system). The pressure in the pneumatic pressure accumulator 4 is then obtained by dividing the air quantity, which is determined in this way, by the volume of the pneumatic pressure accumulator 4.

After termination of the control action at the air springs 6a, 6b of the front axle, the air pressures in the air springs 6a, 6b of the front axle, in the air springs 6c, 6d of the rear axle and in the pneumatic pressure accumulator 4 are thus known in the control unit of the level adjustment system. In the following control process at the air springs 6c, 6d of the rear axle, the difference $dp = p_{counter} - p_{admission}$ can then be determined. In the case in which compressed air is to be transferred from the pneumatic pressure accumulator 4 to the air springs 6c, 6d by means of the compressor 2 dp results from the difference $p_{(air\ springs\ 6a,\ 6d)} - p_{(pneumatic\ pressure\ accumulator\ 4)}$. In the case in which compressed air must be discharged from the air springs 6c, 6d, compressed air is transferred by means of the compressor 2 from said air springs 6c, 6d to the pneumatic pressure accumulator 4. In this case, the difference dp results from $p_{(pneumatic\ pressure\ accumulator\ 4)} - p_{(air\ springs\ 6c,\ 6d)}$.

List of reference symbols

~~(Part of the description)~~

2	Compressor
4	Pneumatic pressure accumulator
6a, …, 6d	Air spring
8, 10, 12a, …, 12d	Switchable directional valve
14, 16, 18	Characteristic curve
20, 22	Pressure sensor
24, 26, 28, 30	Characteristic curve
32	Pressure sensor

ABSTRACT OF THE DISCLOSURE

~~The invention relates to~~ In a method for controlling a compressor (2) in a closed level adjustment system, ~~wherein~~ the actual compressor temperature is continuously determined, at least during operation of the compressor, and the compressor (2) is disconnected when it reaches a threshold temperature. Admission pressure and counter-pressure of the compressor are taken into account in order to determine the actual compressor temperature. Preferably, the actual compressor temperature t is adapted by a value dT after each unit of time has elapsed while the compressor is operating, said value depending upon the difference between counter pressure and admission pressure ($p_{counter}$ - $p_{admission}$).